USING NON ASSOCIATIVE FINITE PSEUDO FIELDS

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In this paper we construct a new algebraic structure called pseudo fields of order \( n^2 \), \( n > 3 \) and \( n \) an odd integer and prove for every such integer \( n \) there exists one and only one pseudo field. We then generalize the concept of pseudo fields to pseudo rings. In fact we prove for a given odd integer \( n, n > 3 \) there are several pseudo division rings. We define a pseudo field \( P \) as a set closed with respect to two binary operations "+" and "." such that \((P, +)\) is an additive abelian group. \((P, .)\) is a commutative loop under ".". In general \( a.(b + c) \) is \( \neq a.b + a.c \) for all \( a, b, c \) in \( P \). "." is not in general associative. We prove if the order of \( P \) is prime then \( P \) has no proper subset which is a pseudo field.